CONTENTS

NUMBER 1

Technical Articles

PAN JUN-ZHENG, CAI GUO-FANG and HUANG YA-JUAN: The modified rheological model for paddy soils in South China after remoulding . . . 1

H. R. KEMP: Climbing ability of four-wheel-drive vehicles 7

V. M. SALOKHE, S. MANZOOR and D. GEE-CLOUGH: Pull and lift forces acting on single cage wheel lugs 25

W. K. BILANSKI and A. L. L'ESPERANCE: An investigation of the bevameter soil physical measurements in the prediction of soil tool draft . . . 41

Technology Showcase

J. WATTON and H. D. WRIGHT: The design of an all-hydraulic low-cost agricultural loader . . . 51

Discussion

PAN JUN-ZHENG: Modes of wet clay soil behaviour under a single cage wheel lug; V. M. SALOKHE and D. GEE-CLOUGH 63

V. M. SALOKHE and D. GEE-CLOUGH: Authors' Reply 65

Erratum 67

NUMBER 2

Technical Articles

G. RAJARAM: Collapse failure in dry clay soils caused by tine implements 69

N. ITO and M. NAKATA: Dynamic behavior of the contact pressure distribution beneath a braked track during turning motion 79

R. N. YONG and M. A. FODA: Tribology model for determination of shear stress distribution along the tyre–soil interface 93

G. KOMANDI: Establishment of soil–mechanical parameters which determine traction on deforming soil. 115

CONTENTS (continued)

H. ITOH and A. OIDA: Dynamic analysis of turning performance of 4WD–4WS tractor on paved road 125

V. M. SALOKHE, D. GEE-CLOUGH and S. MANZOOR: Studies on effect of surface coating on forces produced by cage wheel lugs in wet clay soil 145

Discussion

D. R. FREITAG: Sources of variability in traction data; S. K. UPADHYAYA, W. J. CHANCELLOR, D. WULFSOHN and J. L. GLANCEY . . . 159

S. K. UPADHYAYA: Authors' Reply . . . 161

NUMBER 3

Technical Articles

F. ZIANI and J. BIAREZ: Pressure sinkage relationship for tyres on very loose sand . . 167

N. ITO: The development of the turntable combine harvester for improving turnability and operation efficiency 179

K. TRIRATANASIRICHAI, A. OIDA and M. HONDA: The performance of cage wheels for small power tillers in agricultural soil 193

D. C. SUMINISTRADO, M. KOIKE, T. KONAKA, S. YUZAWA and I. KUROISHI: A model to determine the trajectory of soil motion on a moldboard plow surface 207

R. N. YONG and F. EIYO: Road surface roughness and tyre performance . . . 219

N. A. ZABAVNIKOV and A. V. MIROSHNICHENKO: Variational problem of the mechanics of soil–vehicle interaction 241

R. E. HOLLOWAY and A. R. DEXTER: Traffic intensity on arable land on the Eyre Peninsula of South Australia 247

Announcements 261

CONTENTS (continued)

NUMBER 4

Technical Articles

Z. Błaszkiewicz: A method for the determination of the contact area between a tyre and the ground 263

Yao Yusu and Zeng Dechao: Investigation of the relationship between soil-metal friction and sliding speed 283

T. C. Thakur and R. J. Godwin: The mechanics of soil cutting by a rotating wire . 291

D. C. Suministrado, M. Koike, T. Konaka, S. Yuzawa and I. Kuroishi: Prediction of soil reaction forces on a moldboard plow surface . 307

H. Raheman: Feasibility of operating air cushion vehicle in wetland paddy field 321

N. Ito: Practical method of improving the turnability of terrain vehicles 331

L. Chi and R. L. Kushwaha: A non-linear 3-D finite element analysis of soil failure with tillage tools 343